

Application No.: 10/627149

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REMARKS

Claims 1–19 are currently pending in the present application. Claim 15 is withdrawn. Applicants acknowledge the grouping of claims 16–19 with claims 1–14, as indicated in the Action dated November 4, 2004.

Favorable reconsideration of this application in light of the foregoing amendments, and the following remarks, is respectfully requested.

OBJECTIONS TO THE SPECIFICATION

The Patent Office objected to the disclosure for the informalities asserted in ¶ 2 of the Action. The Applicants respond as follows:

On page 5 at line 23–24, the phrase “Z represents COO⁻ or SO₃⁻ M represents” was objected to. The Examiner suggested the clarifying amendment “Z represents COO⁻ or SO₃⁻; M represents.” Applicants have made the suggested clarifying amendment.

The Patent Office objected to the recitation on page 6 at line 8, of “perfluorofluorene.” The Examiner suggested amending to read “perfluorofluorene.” Applicants have made the suggested clarifying amendment.

The Patent Office has asserted that the three nitrogen atoms shown in the structure provided on page 13 at line 6, should be on the ring. The Patent Office suggests that otherwise the nitrogen atoms become amino groups.

The Applicants disagree with the suggestion that the structure submitted represents a tri-amino cyclohexane, as the Patent Office asserts. The text of the present application at page 13, lines 4 and 5, indicate that useful “ammonia-generating compounds are substituted and unsubstituted **triazine derivatives** such as those of the following formula” (emphasis added) (the formula referred to follows the quoted language). It is clear from the disclosure that the structure is intended to represent a triazine derivative, meaning that the nitrogen atoms are part of the ring structure.

The Applicants have made, however, a clarifying amendment to the structure presented at page 13, line 6, in order to facilitate withdrawal of the Patent Office objection.

The Patent Office asserted that on page 19, at line 20, the term “comp” should be changed to “compound.” The Applicants have submitted a clarifying amendment in which the term “comp” is changed to “compounds”.

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The Patent Office further suggested that “perfluoroadipate” at page 21, line 9, should be changed to “perfluoroadipate”. The Applicants contend that the original application as filed does recite “perfluoroadipate”. If there is a discrepancy, it may have originated in the Patent Office document reproduction process. The Applicants kindly request that the Patent Office clarify this point.

Finally, the Patent Office asserts that on page 21 at line 21 and page 23 at line 10, both recitations of “ammonium-perfluorooctanoate” and “ammonium perfluoro-octanoate”, respectively, are improper. The Patent Office suggests removing the hyphenation in each. The Applicants have made this grammatical correction in both instances.

The Applicants submit that no new matter has been added to the present application with the foregoing amendments to the specification. The Examiner has noted that these objections were to “formalities”. The objections raised in fact relate to certain grammatical or typographical errors on the part of the Applicants. In light of the foregoing amendments and remarks, the Applicants respectfully submit that the objections to the specification asserted in ¶ 2 (a)–(f) in the Action have been overcome and kindly ask that they be withdrawn.

CLAIM OBJECTIONS

The Patent Office raised objections to asserted informalities in claims 2 and 6.

With respect to Claim 2, the Patent Office has suggested a similar amendment to the one discussed above for page 5, lines 23–24. Specifically, it is suggested that “Z represents COO^- or SO_3^- ; M represents” be changed to “Z represents COO^- or SO_3^- ; M represents”.

The Applicants can readily accept the suggested amendment to deal with the identified informality. This amendment, however, is in no way related to the patentability of Claim 2 and should not be understood as a surrender of equivalent subject matter with respect to Claim 2 or any other claim.

The Patent Office also objects to Claim 6. The Patent Office suggests rephrasing Claim 6 in a manner that uses the same language as Claim 1. The Applicants have amended Claim 6 as per the Patent Office suggestion.

The Applicants submit that no new matter has been added by the foregoing amendments to Claims 2 and 6. Furthermore, the Applicants acknowledge the Patent Office position that these amendments were meant only to correct “informalities” in the Claims.

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Applicants respectfully request favorable reconsideration and withdrawal of the objection to Claims 2 and 6 upon entry of the foregoing amendments.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

Logothetis or Logothetis in view of Grootaert or Linert

The Patent Office rejected Claims 1–4, 6–14 and 17–18 under 35 U.S.C. 103(a) as assertedly unpatentable over Logothetis (US 4,983,697) [hereinafter ‘697] or Logothetis (US 4,972,038) [hereinafter ‘038] each individually in view of Grootaert et al. (US 6,730,760 B2) [hereinafter ‘760] or Linert et al. (US 6,737,489 B2) [hereinafter ‘489].

The Patent Office asserts that ‘697 and ‘038 each individually disclose the preparation of a perfluoropolymer by interpolymerization of TFE, PAVE and cyano-containing cure-site monomers such as perfluoro-(8-cyano-5-methyl-3,6-dioxo-1-octene) (8CNVE) and further comprising iodo moieties such as perfluoroalkyl iodides.

The Patent Office admits that both ‘697 and ‘038 are silent about aqueous microemulsions.

To overcome this deficiency of ‘697 and ‘038, the Patent Office turns to ‘760 and ‘489. The Patent Office asserts that ‘760 and ‘489 each teach that in the course of making a curable fluoroelastomer, at least one monomer of perfluorovinyl ether can be pre-emulsified into a microemulsion with an average droplet size of 20 to 150 μm before copolymerization with other gaseous fluorinated monomers. The Patent Office further suggests that the advantage of the process used in ‘760 and ‘489 is a faster polymerization process leading to a low T_g and desirable physical and mechanical properties

The Patent Office further asserts that the object of ‘697 and ‘038 and that of ‘760 and ‘489 are so closely aligned, that one of ordinary skill in the art would have found it obvious to “modify Logothetis’ emulsion polymerization process by pre-emulsifying the monomers” to be in the form of a microemulsion before copolymerization with gaseous monomers.

Regarding Claim 4, the Patent Office asserts that the 8CNVE from ‘697 and ‘038 and the monomer CN31 from ‘760 would read on the claimed monomers.

Regarding Claims 9–10, the Patent Office asserts that both ‘760 and ‘489 have taught using an initiator in the form of a mixture of perfluorosulfinate and an oxidizing agent.

Regarding Claims 11–14, the Patent Office asserts that the working examples have disclosed the isolation step. The Patent Office has not specified to which reference or which Examples it refers. Regarding Claims 12–14, the Patent Office has suggested that preparing a cure composition by adding curing agent and coagent is disclosed in all references.

The Patent Office then rejects remaining dependent Claims 2–3, 6–8 and 17–18 “with the same reason for the rejection of Claims 1, 4 and 9–14.”

Logothetis or Logothetis in view of Gootaert or Linert and in further view of Tournut

The Patent Office rejected Claims 5, 16 and 19 under 35 U.S.C. 103(a) as assertedly unpatentable over ‘697 or ‘038 each individually in view of ‘760 or ‘489 and further in view of Tournut et al. (U.S. 4,025,481) [hereinafter ‘481].

The Patent Office first incorporates by reference the rejection of Claims 1–4, 6–14 and 17–18 discussed above.

The Patent Office admits that ‘697, ‘038, ‘760 and ‘489 are silent about using an inert liquid and highly fluorinated hydrocarbon in the polymerization process.

The Patent Office then asserts that ‘481 teaches that liquid halogenated hydrocarbons including a highly fluorinated one such as CF_2ClBr can be added in the emulsion polymerization of fluorinated monomers. The advantage of this incorporation, the Patent Office asserts, is that such a compound would act as a stabilizing agent for concentrated dispersions.

APPLICANTS’ RESPONSE TO CLAIM REJECTIONS

Logothetis or Logothetis in view of Gootaert or Linert

The Patent Office has not fully appreciated the difference between pre-emulsions and micro-emulsions. Applicants aver that this misunderstanding of the art has led the Patent Office to raise inappropriate rejections of the present claims.

The Applicants explain, by way of background, at page 2, that microemulsions “are stable isotropic mixtures of oil, water, and surfactant which form spontaneously upon contact of the ingredients.” The Applicants further note that “[u]nlike emulsions and pre-emulsions... micro-emulsions are equilibrium phases.”

One of ordinary skill in the art would recognize that, from the above-description, micro-emulsions are characterized by both their size and their thermodynamic stability.

Claim 1 describes an aqueous microemulsion. The aqueous microemulsion comprises a perfluorinated alkane sulphonic or carboxylic acid or salt thereof and a liquid fluorinated monomer comprising a cure-site. The microemulsion optionally comprises an inert liquid and highly fluorinated hydrocarbon compound.

In rejecting claim 1 over '697 or '038 in view of '760 or '489, the Patent Office relies on '760 and '489 for the teaching of microemulsions. The Patent Office points out that '760 and '489 describe components that can be "pre-emulsified into microemulsion" to an average droplet size of 20 to 150 μm . By erroneously assuming that pre-emulsion and microemulsion are synonymous, and paying attention only to particle size and not thermodynamic stability, the Patent Office has mischaracterized the prior art. The difference between a microemulsion and a pre-emulsion is that while both may have similar particle sizes, a microemulsion is also in a thermodynamic stable state. The Applicants have shown that the Patent Office has failed to show a where the prior art teaches a microemulsion, and therefore has failed to find all of the limitations described in Claim 1.

As indicated above, the concept of microemulsion includes both particle size and thermodynamic stability. While '760 and '489 describe pre-emulsions with particle sizes similar to those included in the microemulsions of Claim 1, both fail to teach, suggest or describe the thermodynamic stability required to be a microemulsion. The Patent Office has mischaracterized the pre-emulsions of '760 and '489 by calling them microemulsions. The pre-emulsions of '760 and '489 are not microemulsions, nor does '760 or '489 assert them to be.

According to the MPEP, "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." See MPEP 2143 (emphasis added).

The prior art references relied upon by the Patent Office do not teach or suggest all of the claim limitations of original Claim 1. Applicants respectfully submit that the obviousness rejection over '697 or '038 over '760 or '489 is inappropriate because the Patent Office has failed to establish a prima facie case of obviousness by failing to show all of the claim limitations of claim 1 and failing to show a motivation to combine the prior art teachings in the prior art or

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the knowledge of one of ordinary skill in the art. Therefore, Applicants request that the rejection of Claim 1 be withdrawn.

Claims 2-4, 6-14 and 17-18 each incorporate the limitations of Claim 1 and add patentable features thereto. Applicants submit that when Claim 1 is shown to be patentable over the prior art, Claims 2-4, 6-14 and 17-18 are also. Applicants request that the obviousness rejection over '697 or '038 over '760 or '489 of Claims 2-4, 6-14 and 17-18 be withdrawn.

Logothetis or Logothetis in view of Gootaert or Linert and in further view of Tournut

Claims 5, 16 and 19 each depend upon Claim 1 and add patentable features thereto. The discussion above regarding the patentability of Claim 1 over '697 or '038 each individually in view of '760 or '489 is incorporated herein by reference.

Tournut '481, relates to methods for increasing the mechanical stability of aqueous dispersions of PTFE by adding saturated halogenated compounds. Microemulsions, on the other hand, are thermodynamically stable and may have the advantage of avoiding coagulum in a dispersion. Thus, combining the teachings of '481 relating to mechanical stability with the teachings of '697 or '038 each individually in view of '760 or '489, still fails to teach, suggest or describe the thermodynamically stable microemulsions of Claim 1.

Claims 5, 16 and 19, each incorporate the features of Claim 1 and add patentable features thereto. In light of the patentability of Claim 1 over '697 or '038 each individually in view of '760 or '489, and the failure of '481 to overcome the deficiencies of the '697 or '038 each individually in view of '760 or '489 combination with respect to Claim 1, Claims 5, 16 and 19 are likewise patentable over '697 or '038 each individually in view of '760 or '489 and further in view of '481.

Claim 5 relates to an aqueous microemulsion according to Claim 1, wherein the inert liquid and highly fluorinated hydrocarbon compound comprises a perfluorinated hydrocarbon compound. Claim 16 relates to a composition comprising a fluoropolymer capable of being cured to a fluoroelastomer. The fluoropolymer is derived from an aqueous emulsion polymerization of one or more fluorinated monomers and one or more liquid fluorinated monomers having a cure-site. At least part of the liquid fluorinated monomers is provided as an aqueous microemulsion according to claim 1 during at least the initial stage of the aqueous emulsion polymerization.

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Claim 19 relates to the composition of claim 16 wherein the inert liquid and highly fluorinated hydrocarbon compound comprises a perfluorinated hydrocarbon compound.

The description in '481 fails to teach, suggest or describe the perfluorinated hydrocarbon compound described in Claims 5 and 19. By failing to teach this claim limitation (see MPEP 2143), the combination of '697 or '038 each individually in view of '760 or '489 in further view of '481 fails to teach all of the claim limitations of Claims 5 and 19. The Patent Office has not met its burden of establishing a prima facie case of obviousness with respect to independent Claim 1 and further has failed with respect to the features of Claims 5 and 19, which incorporate the limitations of Claim 1.

Applicants accordingly request withdrawal of the rejection of claim 5, 16 and 19 over '697 or '038 each individually in view of '760 or '489 and further in view of '481.

CONCLUSION

In view of the foregoing remarks, it is submitted that the application is in condition for allowance. Reconsideration of the application and allowance of all pending claims at an early date is courteously solicited. Should the Examiner wish to discuss any aspect of this application, applicants' attorney suggests a telephone interview in order to expedite the prosecution of the application.

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Date

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